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(New Horticultural Series).

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PROVINCE OF BRITISH COLUMBIA.

DEPARTMENT OF AGRICULTURE
(HORTICULTURAL BRANCH).

Diseases of Stone-fruits in B.C.

Peach-leaf Curl.

AS its name implies, this disease shows itself in the curling and puckering of the attacked areas of the leaves. When infection is severe the leaf falls off. Almost complete defoliation, with total loss of the crop, may result. The new twigs may also die. Only peaches are affected, the Elberta being by far the worst variety. Only one infection occurs during the season—namely, when the buds are unfolding in the spring. Even after a bad attack, the second crop of leaves is free from the disease. Cold, wet weather at the time the buds are expanding greatly increases the severity of an attack.

Control measures consist in destroying the fungus-spores which are lying on the buds at the time growth begins. One spraying with a good fungicide will control the disease. It must, however, be put on with sufficient thoroughness to soak into the hairy coverings of the bud-scales of all the buds, and spraying must be completed not later than the first indications of the swelling of the buds. Its value is not lessened by being made two weeks *before* this time. Lime-sulphur solution, not weaker than 1 to 12, is the spray usually given. Where peach-worm has also to be fough this should be made 1 to 9 and applied at the time of first swelling of the buds. Done at this time curl will be controlled and the worm greatly reduced. For worm alone, however, better results are obtained by postponing spraying until nearer blossoming-time, but *it is then too late to spray for curl.* It is not possible to secure maximum results in the control of both pests by one spraying.

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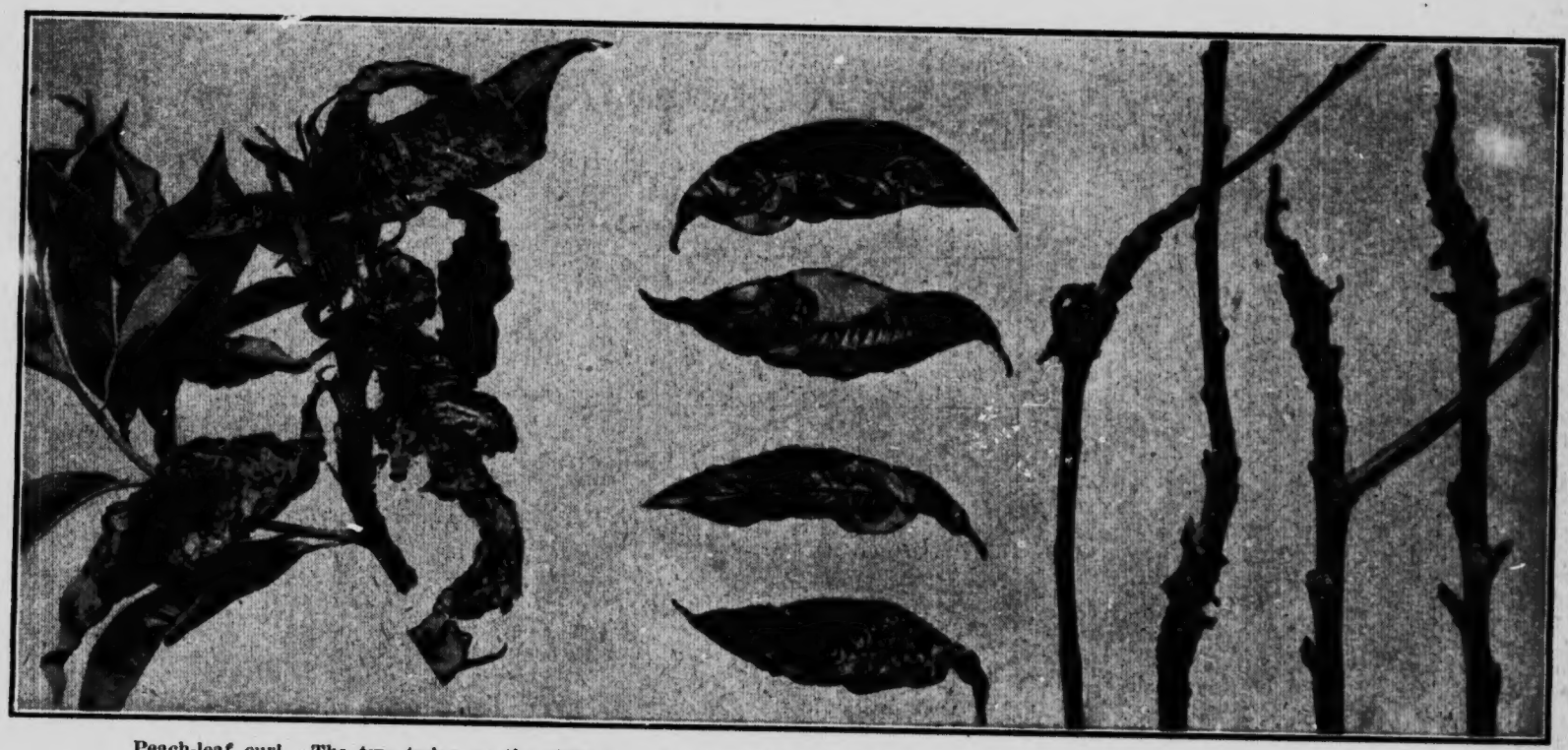


Peach-leaf curl. The two twigs on the right have been completely killed by the disease. (From Bull. 24, Dom. Exp. Farms.)

Spraying at or just before the time the buds are swelling will control curl and much of the worm. Later spraying kills more worms, but is useless against curl. Bear this in mind and plan accordingly.

(*See also* special circular on peach-worm.)

Peach-mildew.

Stunts the young growth and forms disfiguring patches of greyish mould on the fruit. These reduce the market value and also cause the fruit to rot in transit or storage.

(From Bull. 24, Dom. Exp. Farms.)

Trees regularly sprayed with lime-sulphur for curl or worm do not suffer so much from mildew. Where it is bad, however, an additional spray of atomic sulphur, 4 to 5 lb. to 40 gallons of water, may be applied when the first signs of mildew appear. Especial care should be taken to cover the fruit with the spray.

Brown-rot of Stone-fruits.

Very destructive to stone-fruits in moist climates. Sweet cherries are especially liable to suffer. Twigs may also be killed and gummosis cankers formed.

Control.—The principal source of the disease each year is the dried-up rotted fruit (mummies). Whether these are left hanging on the tree or lie on or near the surface of the soil, they produce large numbers of spores in the spring. It is of the first importance, therefore, to prune or knock them all off and collect and burn them, unless they can be buried deeply enough to prevent them from being brought to the surface again in spring. This disposal of the mummies is one of the most difficult problems in the control of the disease. Good air-drainage for the orchard and sufficient pruning to ensu. ventilation to the interior of the tree are also important. With the larger fruits thinning should be practised, since the rot often starts where two fruits touch. Spraying is also necessary. Use winter strength lime-sulphur before growth begins. Other sprayings are given when the shucks have been pushed off the developing fruit, and about a month before the fruit

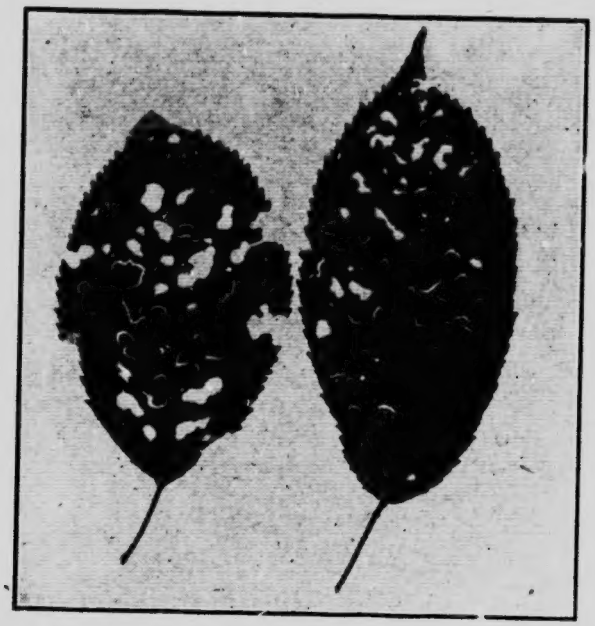
Brown-rot in plums. Note the numerous masses of spores. (From Bull 24, Dom. Exp. Farms.)

is ripe, with an intermediate one if necessary. Ordinary lime-sulphur cannot be used for these sprayings, being too injurious to the foliage. for some plums, 4-4-40 Bordeaux mixture may be used. For cherries and sensitive varieties of plums, 2-3-40 Bordeaux, whilst for peaches only the self-boiled lime-sulphur is safe. It is to be feared, however, that the grower of the Lower Mainland, where the disease is worst,

cannot afford to adopt all the measures necessary, since the growers in the Interior do not have to fight brown-rot, thus having a great advantage in stone fruit production from the standpoint of commercial competition.

Shot-hole.

Various causes may result in "shot-hole," among them, spraying with a badly made or too strong fungicide. The form here referred to, however, is due to a fungus which kills small areas in the leaf. These fall out, producing a "shot-hole." If these are numerous, much of the value of the leaf is lost. Usually the disease is not severe enough to call for special treatment. If it is, give a dormant spray of lime-sulphur, and follow by sprayings of 2-3-40 Bordeaux mixture. If the fruit matures early it may be sufficient to do this after picking. If not, spray also after the fruit is set, as for brown-rot.



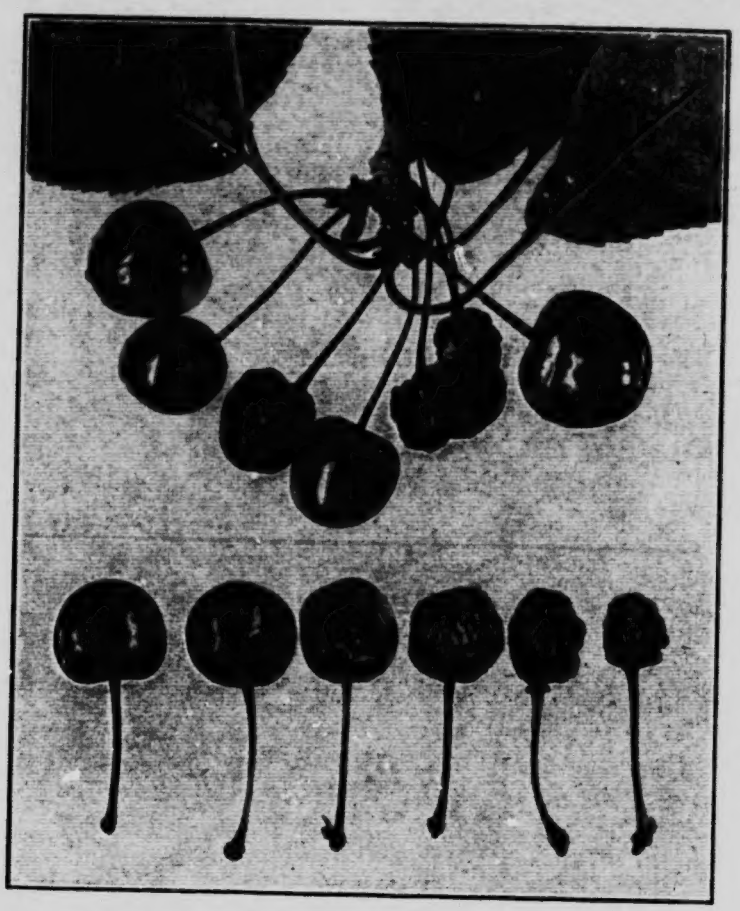
Shot-hole of cherry. Some of the attacked spots have fallen out; others are about to do so. (From Bull. 24, Dom. Exp. Farms.)

Gummosis.

The cell-walls of stone-fruit trees are very liable to undergo a change into a gummy substance which exudes at the surface. This formation of gum is known as gummosis. It may be the result of mechanical injury, of insect punctures or borings, of winter injury, or, more rarely, of fungus or bacterial infection. Gumming often follows brown-rot infection of the twigs. It may, however, be spontaneous, especially in trees that have made a forced growth, due to too much water or

nitrogenous fertilizer, or both. Such trees are also more liable to extensive gumming as a consequence of any of the injuries above mentioned.

Sweet-cherry trees, especially in wet or other unfavourable situations, are particularly liable to gummosis, although the virulent bacterial form of the disease, so destructive in some of the Pacific States, has not been observed here. It is very important that sweet cherries have



Brown-rot on sweet cherries. The lower figure shows a series of different stages in the development of the disease. (From Bull. 24, Dom. Exp. Farms.)

a well-drained [illegible] subsoil. Gumming very often follows where cherry-trees have been winter-injured. The proper cultural methods and the growing of adaptable varieties for the section is of the greatest importance. Where cherry-trees have become winter-injured on the trunks, a good practice is to slit open the bulged part with a knife; this will allow the air and sunlight to enter and prevent fermentation taking place. Where the bark on the trunk has cracked or the bark heaved away from the wood, a few small nails should be driven in to bring it back and hold it in place.

Large cankers should be cleaned out, cutting away all diseased tissue until a sound surface is exposed. Disinfect the wound with corrosive sublimate, 1 to 1,000 of water, to prevent infection with fungi or bacteria, and paint over with a lead paint free from turpentine. Follow those cultural practices that will lead to a firm stocky growth, of moderate amount, rather than a forced growth of soft wood.

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This circular has been prepared by J. W. Eastham, B.Sc., Provincial Plant Pathologist, at the request of the Horticultural Branch.

Copies of this circular may be obtained free of charge on application to the Horticultural Branch, Department of Agriculture, Victoria, B.C., or from local branch offices of the Department.

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